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|----------------------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO.            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/572,855                 | 03/22/2006  | Munekatsu Shimada    | 072280-0013         | 9266             |
| 20277                      | 7590        | 09/27/2010           | EXAMINER            |                  |
| MCDERMOTT WILL & EMERY LLP |             |                      | KIM, JOHN K         |                  |
| 600 13TH STREET, N.W.      |             |                      | ART UNIT            | PAPER NUMBER     |
| WASHINGTON, DC 20005-3096  |             |                      | 2834                |                  |
| MAIL DATE                  |             | DELIVERY MODE        |                     |                  |
| 09/27/2010                 |             | PAPER                |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                       |
|------------------------------|--------------------------------------|---------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/572,855 | <b>Applicant(s)</b><br>SHIMADA ET AL. |
|                              | <b>Examiner</b><br>JOHN K. KIM       | <b>Art Unit</b><br>2834               |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on **27 July 2010**.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) **1-35** is/are pending in the application.  
 4a) Of the above claim(s) **6-35** is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) **1-5** is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement (PTO/SB/08)  
 Paper No./Mail Date 5/13/2010

4) Interview Summary (PTO-413)  
 Paper No./Mail Date. \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

#### DETAILED ACTION

1. This Office action is in response to papers filed on 7/27/2010. Amendments made to the claims and Applicant's remarks have been entered and considered.

#### *Response to Arguments*

Applicant's arguments filed 7/27/10 have been fully considered but they are not persuasive.

2. The applicant argues in page 8 that "*The present invention is further distinguishable over the cited references because the window (60) of Dulaney et al., to which laser peening is applied, is not a through-hole, but rather, is a recess, as shown in Fig. 7 (see also col. 6:61 - 7:4, reproduced below).*

*FIG. 7 shows another example of utilization of the present invention, in which another lens 40 is utilized, i.e., a cylindrical lens, although other shapes may be utilized. Lens 40 is used to change the spot dimension S as laser beam 30 impacts within a recess 60 within workpiece 20. The shape of such recess 60 may be that of a blind bore, hole, slot, ridge, or other type of regular or irregular shaped recesses, in which it is desired to have laser shock processed areas therein. The oblique area processing of the present invention permits such uniform worked areas within the recess, regardless of the particular geometry".*

However, the examiner regards the argument is not persuasive. In col. 6 line 66 as pointed by the applicant, Dulaney clearly teaches a shape of recess being a hole (see underline and bold parts in above paragraph highlighted by the examiner).

3. The applicant further argues in page 8 that "*In addition, the laser peening according to Dulaney et al. comprises applying a laser beam 30 normal to one of the surfaces of the workpiece 20 while applying laser beam 32 oblique to the other of the surfaces of the workpiece 20, provided that the laser beams are so controlled that the workpiece experiences substantially identical conditions on the opposite sides of the workpiece as shown in Figs. 4A, 4C, 5, and 6, claim 1, and the specification (col. 6:1-16)".*

However, the examiner regards the argument is not persuasive. In page 4 of the office action mailed on 4/27/2010, the examiner pointed Fig. 7 (which is an another example of utilization, not the example the applicant is pointing to) and col. 4 lines 61-65 teaches a compression residual stress caused by applying a laser peening (30) of irradiating at an angle relative to (oblique angle) the inner wall (wall of 60) of the inner circumference of the window (60).

4. Argument to claims 4-5 is not persuasive since the argument to claim 1 is not persuasive.

5. Thus, the rejection of claims 1-5 are maintained and restated below.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al (US 2003/0201685) in view of Dulaney et al (US 6236016).

As for claim 1, Shimada shows (in Figs. 1-28) and discloses a rotor using an electrical steel sheet with low iron loss, the rotor (1, Fig. 1) comprising: a bridge side (15, 16, Fig. 2) on an inner circumference of a magnet insertion window (2, 3) passing through said rotor having a layer (11, 12, Fig. 2) which is formed across an inner wall thereof (since each lamination steel sheet is hardened prior to stack, the inner wall of magnet insertion window as assembly is hardened) and is work hardened [0062, 0015, 0071] due to a stress having added to the inner wall, said stress caused by applying a laser peening of irradiating at an angle to the inner wall of the bridge side on the inner circumference of the magnet insertion window with a laser through a liquid (Water W, Fig. 4) to transmit a shockwave resulting from a high pressure plasma produced over said inner wall by said laser to said inner wall [0071]. Shimada however is silent to teach the stress having added to the inner wall being a compression residual stress,

wherein said compression residual stress caused by applying a laser peening of irradiating at an angle relative to the inner wall of the bridge side on the inner circumference of the magnet insertion window. In the same field of endeavor, Dulaney shows (in Fig. 7) and discloses (col. 4, line 61-65) a compression residual stress caused by applying a laser peening (30) of irradiating at an angle relative to (oblique angle) the inner wall (wall of 60) of the inner circumference of the window (60). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Dulaney with that of Shimada for predictable results that reflection of the laser beam can possibly degrade and reduce the energy applied to the workpiece (col. 2, line 3-8).

As for claim 2, Shimada in view of Dulaney teaches a rotor as claimed in claim 1, and Shimada further shows (in Fig. 2) and discloses [0102] in which said bridge side (15, 16) irradiated with the laser is a region where a high stress occurs due to centrifugal force acting on a magnet when said rotor rotates.

As for claim 3, Shimada in view of Dulaney teaches a rotor as claimed in claim 1, and Shimada further shows (in Fig. 1) and discloses [0061] a magnet of said rotor for each pole is divided into a plurality of pieces (2, 3).

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al (US 2003/0201685) in view of Dulaney et al (US 6236016), and in further view of Edwards et al (US 6848495).

As for claim 4, Shimada in view of Dulaney teaches a rotor as claimed in claim 1. Shimada in view of Dulaney however is silent to show or disclose said bridge side has a

step. In the same field of endeavor, Edwards shows (in Fig. 6) and discloses bridge of rotor slot side (508) has a step. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have bridge side has a step by combining the teaching of Edward with that of Shimada since Shimada discloses the lamination sheets having magnet openings are punched and for predictable result of preventing the leaking or seeping of the molten material from between the stacked laminations (col. 7, line 18-20).

As for claim 5, Shimada in view of Dulaney and Edwards teaches the claimed invention as applied to claim 4 above. Edwards further shows (in Figs. 6-7) and discloses said step (508) is located on one side or each side.

***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date Of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened Statutory period, then the shortened statutory .period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN K. KIM whose telephone number is (571)270-5072. The fax phone number for the examiner where this application or proceeding is assigned is 571-270-6072. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached on 571-272-8188.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/  
Supervisory Patent Examiner, Art Unit 2834

JK